

**ФГБОУ ВО УГМУ Минздрава России**  
**Кафедра иностранных языков**

**Тексты для чтения на английском языке для студентов  
медицинских специальностей**

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**Аннотация**

Целью данного электронного ресурса является контроль усвоения знаний и навыков, полученных в процессе изучения английского языка студентами первого курса всех медицинских специальностей (кроме фармацевтического факультета). ЭОР включает в себя пять текстов, отобранных из американских и английских научных и научно – популярных журналов для проверки имеющихся навыков чтения аутентичных текстов.

Каждый текст сопровождается лексическими и грамматическими упражнениями. Лексические упражнения призваны осуществить контроль понимания текста, проверить качество усвоения лексического материала, расширить активный и пассивный словарный запас студентов по медицинской тематике. Обращается внимание на сочетаемость слов и употребление предлогов, представлены упражнения по словообразованию. Вопросно-ответные упражнения к отдельным частям текста помогают усваивать медицинскую лексику для формирования относительно самостоятельного высказывания. Упражнения на альтернативные ответы и множественный выбор проверяют умение студентов читать текст с пониманием общего содержания прочитанного и находить в тексте запрашиваемую информацию.

Упражнения по грамматике составлены в соответствии с требованиями рабочей программы по изучению иностранных языков. Грамматические упражнения призваны контролировать умение студентов правильно употреблять видо–временные формы глагола. Содержатся некоторые грамматические правила и задания на их отработку.

**Ключевые слова:** английский язык, английский язык для студентов-медиков

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## Use energy drinks when cramming for exams? Your heart may pay a price

Final exams – and the ensuing all-night study sessions they cause – are looming large for many students across the country. But reaching for energy drinks to perk up those drooping eyelids and boost study performance could do more harm than good.

Recent research shows just one energy drink can affect blood vessel function. And other studies have shown these caffeine-and-herbal concoctions can increase stress hormones and are linked to changes in blood pressure and the heart's electrical activity.

"What I say to people who are studying is to avoid energy drinks. And to people who are exercising, avoid them," said Dr. John Higgins, chief of cardiology at Lyndon B. Johnson Hospital, a sports cardiologist and a professor at McGovern Medical School at UTHealth in Houston.

Higgins led a study that looked at the effects of energy drinks on blood vessel function on 44 non-smoking, healthy medical students who were in their 20s. He and his colleagues tested the students' blood vessel, or endothelial, function and then tested it again 90 minutes after they had consumed a 24-ounce energy drink.

The preliminary results, presented earlier this month at the American Heart Association's Scientific Sessions conference, suggest the drink reduced by about half how much the participants' blood vessels were able to dilate, or expand.

"During exercise or under stress, your arteries have to open up because they need to get blood to the muscles, heart and brain," Higgins said. "If there is impairment during exercise or mental stress, it could lead to adverse effects."

The market for caffeine-infused energy drinks has grown during the last decade, with new blends adding vitamins and other ingredients touting everything from memory enhancement to concentration benefits. According to research company Statista, energy drink sales reached \$2.8 billion in 2016, with consistent increases since 2011. A 2016 Statista survey of 18- to 69-year-olds showed 1 in 4 people had an energy drink almost every day.

Coffee and its caffeine have gotten the green light, in moderation, from the U.S. Department of Agriculture. Federal dietary guidelines published every five years as a go-to source for nutrition advice say three to five cups a day, which can be up to 400 milligrams a day of caffeine, can be part of a healthy diet.

But Higgins said energy drinks are more than just caffeine.

"We suspect it has to do with their blends," he said. "They have lots of sugar and caffeine, but also taurine, an amino acid, guaranine (from a South American plant), another source of caffeine, and they sometimes have vitamins. But they have these substances at levels in excess of the recommended daily allowance, sometimes even 10 times or more."

On campus, there's a common pattern, said LaVelle Hendricks, an associate professor of counseling and a student affairs coordinator at Texas A&M University-Commerce, about an hour northeast of Dallas. When students are dealing with stress and lack of sleep, "when they get close to exam time, they turn to these drinks," he said. "They get this boost of energy, but then they have headaches and they crash. As a way to re-energize and get that same boost, they repeat the cycle."

The tough-but-true advice is there are no shortcuts.

"You have to stick to a regimen," Hendricks said. "It entails going to class, studying, eating right, exercising right and getting the proper amount of sleep."

*A Journal of American College Health* study in 2011 said the consumption of energy drinks has been associated with perceived stress levels of college students. Middlebury College in Vermont banned the on-campus sale of energy drinks. In Britain, many supermarkets have begun banning sales to children under 16, and the government is considering other restrictions.

Higgins said he'd like more short- and long-term studies that show how these energy drinks – and their blends of ingredients – work on the body. So far, the evidence has been inconsistent, he said, with some showing improved performance, some reduced and others no effect.

Higgins warns that some people are more at risk for the effects from energy drinks, including people under 18; people of small stature; people who don't normally drink caffeine or are sensitive to it; pregnant or breastfeeding women; people taking stimulants for conditions such as attention deficit disorder; and people with certain medical or cardiovascular conditions.

For a healthy boost during studying, Higgins suggests high-intensity exercise, or even just a quick run up and down the stairs. Getting outside, "stretching the eyes" with relaxed nature-watching or a power nap also can help, he said.

"If you are really that tired and coffee isn't keeping you awake, you should probably go to sleep. You aren't going to remember anything for the test anyway."

Healthy young adults who don't consume caffeine regularly experienced greater rise in resting blood pressure after consumption of a commercially available energy drink—compared to a placebo drink—thus raising the concern that energy drinks may increase the risk of cardiac events, Mayo Clinic researchers found.

In this study, researchers alternately gave a can of a commercially available energy drink or a placebo drink to 25 healthy young adults, age 19 to 40, and assessed changes in heart rate and blood pressure. Blood pressure and heart rate were recorded before and 30 minutes after energy drink/placebo drink consumption, and were also compared between caffeine-naïve participants (those consuming less than 160 mg of caffeine per day, the amount frequently found in a cup of coffee) and regular caffeine users (those consuming more than 160 mg of caffeine per day).

Participants experienced a marked rise in blood pressure after consuming the energy drink as compared to the placebo. The effect was most dramatic in people who did not typically consume much caffeine, researchers found. Overall, the blood pressure increase was more than doubled in caffeine naïve adults after consuming the energy drink vs. placebo, they found.

"We know that energy drink consumption is widespread and rising among young people. Concerns about the health safety of energy drinks have been raised. We and others have previously shown that energy drinks increase blood pressure," says lead author Anna Svatikova, M.D., Ph.D., cardiovascular diseases fellow at the Mayo Clinic. "Now we are seeing that for those not used to caffeine, the concern may be even greater. Consumers should use caution when using energy drinks because they may increase the risk of cardiovascular problems, even among young people."

### **1. Answer the questions.**

#### When

- a) does the consumption of energy – drinks increase?
- b) is the rising of stress hormones in blood?
- c) did professor Higgins perform the second checkup of the non – smoking students?
- d) were blood pressure and heart rate recorded?

### What

- a) makes more harm than good when cramming for exams?
- b) are the conditions that your arteries need to expand ?
- c) can new energy drinks help you to improve?
- d) measures are being taken to reduce the energy drink consumption?
- e) is Dr Higgins planning to perform?

### How

- a) to make study performance more effective?
- b) is the raise of energy end?
- c) many cups of coffee a day won't do you harm?

### Who

- a) should avoid energy drinks?
- b) were the participants of the experiment performed by Dr Higgins?
- c) is Dr Higgins warning addressed to?

## **2. Match words with their definitions.**

- |                |  |
|----------------|--|
| 1. enhancement | a) limitation of the use   |
| 2. restriction | b) an advantage or profit gained from something                  |
| 3. boost       | c) care taken to avoid danger or mistakes                        |
| 4. allowance   | d) a fast increase in amount                                     |
| 5. caution     | e) the amount of something that is permitted or available to use |
| 6. participant | f) something that is required but is absent or in a short supply |

7. excess activity	g) a person involved in a particular
8. lack worse	h) the occurrence of a change for a
9. benefit	i) being more than usual or required
10. impairment	j) an increase or improvement in quality, value or extent

**3. Make up sentences with the words from the text. Use appropriate tense forms, Active or Passive voice. Pay attention to the use of articles and prepositions.**

e. g. doctor / examine / patients / from / 7 to 8 / yesterday. –

The doctor was examining patients from 7 to 8 yesterday.

1) They / find / shortcut / to / full / recovery / recently.

2) He / avoid / alcohol / for / 10 years.

3) The degree / lung / impairment / measure / pulmonary / function / test / yesterday.

4) An hour / ago / doctor / say / brain / damage / from / lack / oxygen.

5) Handling / dangerous / chemicals / always / need / extreme / caution.

6) Demographers / hope / there / be / excess / births / over / deaths / during / next / decades.

7) Milk / teeth / not discard / completely / till / full / stature / attain.

8) The government / be going / introduce / tough / laws / deal / illegal / drugs.

9) I / feel / down / whole / evening / so / I / take / energizer.

10) In / his / recent / report / Dr Moor / say / vaccination / boost / your / immune / system.



**4. Determine functions of the Infinitive in the sentences ( subject, part of predicate, attribute, object, adverbial modifier).**

1. His full recovery is a direct result of all efforts made to combat the disease.
2. The problem was to stop extreme pain.
3. He was the first to fall the victim to this disease.
4. The researchers intended to perform the experiment the following month.
5. To give up taking the prescribed medications was an error.
6. Here is the herbal mix to be taken twice a day.
7. She began to adhere to a vegan diet to stay healthy.

**5. Complete the sentences with the proper form of Infinitive.**

1. As they entered the room, they found him (suffer) from extreme pain.
2. The patient is sorry ( miss) his appointment to the doctor.
3. Feeling healthy again! Oh, I'm happy ( to discharge) from hospital.
4. The progress of tooth decay can (prevent).
5. The surgeon looks quite exhausted. He must (operate) all night.
6. He is said ( work) with eminent surgeon Ron Breslow in 2011.
7. I don't expect ( admit) to hospital on Monday.

**Keys to "Answer the questions".**

When

- a) during all – night sessions.
- b) after the blood has been affected by caffeine – and herbal concoctions.
- d) 90 minutes after the energy drink was consumed
- d) 30 minutes before and after the consumption of the energy drink.

What

- a) consumption of energy drinks
- b) you are doing physical exercises or under stress
- c) memory and concentration
- d) banning on – campus sale, banning sale to children under 16
- e) short - and long – term studies to show how energy drinks work on a body

#### How

- a) you should do high – intensity exercises, go out, watch nature, stick to a regimen
- b) students have headaches and crash
- c) three to five cups a day

#### Who

- a) people who are studying or exercising
- b) 44 non – smoking, healthy medical students who were in their 20-s
- c) people under 18, people of small stature, pregnant women ...

#### **Keys to “Match the words ...”**

1 - j, 2 - a), 3 - d), 4 - e), 5 - c), 6 - g), 7 - i, 8 - f, 9 –b, 10 - h

#### **Keys to “Make up sentences ... “.**

1. They have found a shortcut to the full recovery recently.
2. He has been avoiding alcohol for 10 years.
3. The degree of lung impairment was measured by pulmonary function test yesterday.
4. An hour ago the doctor said the brain had been damaged from lack of oxygen.
5. Handling dangerous chemicals always needs extreme caution.
6. Demographers hope there will be excess of births over deaths during next decades.
7. Milk teeth are not completely discarded till the full stature is attained.

8. The government is going to introduce tough laws to deal with illegal drugs.
9. I was feeling down the whole evening so I took an energizer.
10. In his recent report Dr Moor said the vaccination would boost your immune system.

**Keys to “Determine the function”.**

1. to combat - adverbial modifier of purpose
2. to stop - part of predicate
3. to fall - attribute
4. to perform - object
5. to give up - subject
6. to be taken - attribute
7. to adhere - part of predicate, to stay - adverbial modifier of purpose

**Keys to “Complete the sentences...”**

1. to be suffering
2. to have missed
3. to have been discharged
4. can be prevented
5. must have been operating
6. to have worked
7. to be admitted

## **In Utero Transplant in First Clinical Trial Successful**

Doctors treated the fetus, who has alpha thalassemia major, with cells from her mother's bone marrow.

*May 30, 2018*

Pediatric surgeons at the University of California, San Francisco, have treated a second-trimester fetus with stem cells taken from her mother's bone marrow. The baby, born in February, was the first patient enrolled in the world's first clinical trial using stem cells transplanted prior to birth. She is "apparently healthy," despite living with a deadly genetic disease called alpha thalassemia, according to a statement from the university.

Tippi MacKenzie, a pediatric surgeon at the University of California, San Francisco (UCSF) Benioff Children's Hospital, led the team that performed the transplant. "It is too early to say how effective the stem cell transplantation will be, but we are encouraged by how well she and her mother have tolerated the treatment," she says in the [statement](#). "Her healthy birth suggests that fetal therapy is a viable option to offer to families with this diagnosis."

The baby, Elianna Constantino, was born on February 1 to Nichelle Obar after five blood infusions and one stem cell transplant over the course of four months in a [clinical trial](#) funded by the California Institute for Regenerative Medicine. The trial began in 2016 to investigate using stem cells to treat thalassemia. Constantino has a lethal form of it, called alpha thalassemia major, which is caused by abnormalities on the *HBA1* and *HBA2* genes, reduces the body's ability to produce hemoglobin, according to the National Institutes of Health's [Genetics Home Reference](#), and can cause swelling of the liver or heart. Babies with alpha thalassemia typically die before birth or are stillborn.

During pregnancy, a routine ultrasound performed at a medical center in Hawaii, where the family resides, detected the fetus had an enlarged heart. According to the UCSF statement, intrauterine blood transfusions were required to treat the swelling before the stem cell transplant could be performed. The transplant was given during one of the transfusions.

"Elianna's doing great," Obar tells *The New York Times*. "I'm not disappointed at all. If it works, great. If it didn't, we're O.K. with it. We'll celebrate all the little accomplishments. I'm glad we did it."

"Once universally fatal, thalassemia can now be managed as a chronic disease," says Elliott Vichinsky, a hematologist and the founder of the Northern California

Comprehensive Thalassemia Center at UCSF Benioff who is overseeing the baby's treatment, in the statement. "In utero stem-cell transplantation may take it one step further: as a disease that can be successfully treated before birth."

"Everybody has a perfect donor when they're a fetus, and that's the mom," MacKenzie tells *The New York Times*. According to the article, she plans to perform a few more transplants, monitor the patients' progress, and then decide how to proceed.

### 1. Complete sentences with the following words.

to encourage    viable    ability    fetus    to encourage    stem cell  
swelling    to tolerate    trial    infusion

1. In order to better protect the legal right of \_\_\_\_\_ it should be prescribed in the code of civil procedure that it should share the capacity of party.
2. The drug or medical treatment must go through \_\_\_\_\_ before being approved.
3. The very act of extracting embryonic \_\_\_\_\_ has raised a raft of ethical questions for the medical communities.
4. I owe my success and career to him for he \_\_\_\_\_ me to get a good education.
5. Some patients previously had adverse reactions to animal insulin but \_\_\_\_\_ the human insulin well.
6. Years of hard work remain to be done before the basic research of today can become \_\_\_\_\_ treatments and cures tomorrow.
7. This is an antibody given by \_\_\_\_\_ for very acute attacks to stop the "inflammatory" cascade.
8. At times the angina causes such \_\_\_\_\_ in the throat that the breathing is interfered with completely.
9. Your \_\_\_\_\_ to heal makes you what we'd call a Natural, a human with extraordinary capabilities.

### 2. Mark the sentences T (true), F (false) or D/s (Doesn't say).

1. Performing this transplant is a breakthrough in regenerative medicine.

2. The baby and her mother are suffering after the cell transplantation.
3. It took the researchers more than half a year to perform the treatment.
4. The transplantation was caused by threatening changes of the fetus's heart.
5. In case with Elianna, the lack of hemoglobin can lead to death.
6. The disease can be called curable now.
7. Many clinics are going to use this method of treatment.

### **3. Grammar exercises.**

The use of Present Perfect: a) life experience b) an action is in the past - the result is now c) unfinished time word d) news, recent events e) how long f) recently completed actions

The use of Past Simple: a) finished time word 2) single action in the past, finished time period 3) series of past actions

1. Find in the text two sentences with Present Perfect and explain its use.

2. Complete with Past Simple or Present Perfect. Explain use of the tense. Translate sentences into Russian.

1. They (carry out) an important experiment this week.
2. The appropriate treatment already ( be directed) towards the removal of renal stone.
3. The British scientist Alexander Fleming (discover) the first antibiotic penicillin by accident.
4. The surgeon (save) hundreds of people in his life.
5. The researchers ( work out) the physiological mechanism of regulating gastric secretion.
6. Some people ( require) hospital treatment for anaphylactic shock due to an adverse food reaction last month.
7. The baby's brain development is seriously retarded because he (not consume) foods with amino acid phenylalanine.

8. She (undergo) two operations since January.
9. The patient is feeling bad for being at risk from severe allergy he (not avoid) eating food with peanut.
10. Some people ( require) hospital treatment for anaphylactic shock due to an adverse food reaction last month. .
11. When she ( feel) a sharp pain in the stomach we (call) in an ambulance.

**4. Choose the right answer.**

1. The investigation in California Institute was aimed at:
  - a) preventing genetic mutations
  - b) management of the mentioned inherited disease
  - c) avoiding stillbirths
2. The consequences of this medical precedent are as follows:
  - a ) complete cure of thalassemia is possible now
  - b) the cause of this disease has been revealed
  - c) this method can be implemented in the practice of thalassemia treatment
3. In case of thalassemia, gene mutation leads to:
  - a) low hemoglobin contents
  - b) reduced coagulability of blood
  - c) blood thinning)
4. Doctor MacKenzie is inspired with hope because:
  - a) her aim – the full recovery of the disease – has been achieved
  - b) the child and the mother have endured the medication well
  - c) the incidence rate of thalassemia has reduced by now
  - d) Signs of thalassemia might be detected by:

- a) X – ray control
- b) biochemical analysis
- c) ultrasound examination

**5. Complete sentences with Gerund or Infinitive form of the verbs in brackets.**

1. We suggest (forbid) (smoke) in the hospital.
2. It is worth ( implement) this new method of treatment.
3. She agreed (look) after the sick man.
4. I don't permit my child (eat) fast food.
5. I decide (lose) weight.
6. You shouldn't neglect (take) the drugs on time.
7. I avoid ( go) to the dentist until it's too late.
8. He refused (drink) the bitter herbal mix.
- 9 We promised ( raise) money to buy an invalid carriage.
10. The researchers completed (perform) the experiment.

**1. Keys to “Complete sentences “.** 1 –fetus, 2 – trial , 3 - stem cells, 4 - to encourage, 5 - to tolerate

6 - viable, 7 - infusion, 8 - swelling, 9 – ability

**2. Keys to “Mark sentences True or False”.** 1. True. 2. False. 3. False. 4. True. 5. True. 6. True. 7. D/s.

**3. Keys to “Grammar exercises”.**

1. The first paragraph. “Pediatric surgeons ..... have treated .....” .



News.

2. The second paragraph. "It is too early ..... have tolerated ..... " .

Recent events.

1. have carried out - unfinished time word
2. has been directed - recently completed actions (already).
3. discovered - single action in the past
4. has saved - life experience
5. have worked out - news, recent events
6. required - finished time word ( last month)
7. has not consumed - an action in the past - the result is now
8. has undergone - how long
9. has not avoided -- an action in the past - the result is now
10. have required -- new, recent events
11. felt, called - series of past actions

**4. Keys to " Choose the right answer".** 1 - b, 2 - c, 3 - a), 4 - b, 5 - c

**5. Keys to "Gerund or Infinitive".**

1. forbidding, smoking
2. implementing
3. to look after
4. eating
5. to lose
6. taking
7. going

8. to drink

9. to raise

10. performing

## Parkinson's Drugs Aimed at Rare Gene Mutation Show Promise for Other Sufferers, Too

Shutting down an overactive enzyme could become a general treatment, rather than one solely intended for the few who inherit a mutated Parkinson's gene.

A handful of gene mutations are linked to inherited PD ( Parkinson Disease) but they account for less than 15 percent of the one million U.S. cases and the five million worldwide. The most common of these is a mutated version of *leucine-rich repeat kinase 2* (*LRRK2*). It is responsible for one to two percent of PD cases, but the percentage is much higher in certain groups.

*LRRK2* has drawn the interest of pharmaceutical companies because it is an accessible drug target. The gene encodes a namesake protein that functions as a type of enzyme called a kinase. The LRRK2 protein attaches chemical tags called phosphates to other proteins. Like a molecular switch, these phosphate tags activate or silence LRRK2's targets. Dozens of drugs that inhibit the activity of kinases have been approved in the last 30 years, primarily for cancer..

A study published July 25 in *Science Translational Medicine* suggests *LRRK2* might indeed be a culprit in a much broader population of PD patients. "We found that the most common mutation of *LRRK2* and wild-type (unmutated) *LRRK2* have the same downstream pathogenic effects," says Roberto Di Maio, a research assistant professor at the Pittsburgh Institute for Neurodegenerative Diseases (PIND) and lead author on the study.

The findings suggest many paths could lead to LRRK2 overactivity and subsequently to PD pathology. The implication: a drug roadblock of LRRK2 might halt progression of PD in people with and without the mutation.."

In their *LRRK2* research professor Di Maio and his colleagues built on earlier results hinting that the version of the gene without any mutations might be involved in noninherited PD. The researchers took that a step further by developing a test to detect how LRRK2 interacts with other proteins. They tracked LRRK2's activity in dopamine-producing neurons in postmortem samples from people who had PD.

Parkinson's arises because these neurons, which are crucial to controlling movement, break down and die. With information in-hand about LRRK2's protein interactions, Di Maio says, the team then walked step-by-step, biochemically speaking, along the paths before and after LRRK2 to detect factors that affect its activity. They found LRRK2 sits at a crossroads involving the PD-associated

protein alpha-synuclein, oxygen-containing molecules tied to inflammation, and malfunctioning mitochondria, the powerhouses of the cell. As a final step in their work, Di Maio and his colleagues used rats to show inhibiting LRRK2's hyperactivity dampens its negative effects.

Alpha-synuclein was the first gene mutation linked to hereditary PD, and it is the main component of the cell-smothering deposits. Alpha-synuclein is also tied to impairments in the mitochondria and damaging oxygen-containing molecules. These new results show mitochondrial dysfunction, alpha-synuclein overexpression and oxidative stress in general can activate LRRK2. The usual caveat with such findings is that benefits for patients are many years away.

. One big question mark, however, is LRRK2's normal role in a cell and what happens when the protein's activity shuts down. Like most disease-related proteins, LRRK2 has a role in maintaining health—in this case in the immune system. It works in white blood cells in a pro-inflammatory response to injury or pathogens.,

The light/dark roles of LRRK2 mean using inhibitors to dampen its effects is not necessarily a slam dunk against PD. "I think that the worry is that if you're inhibiting LRRK2, we don't quite know what all the side effects are going to be and if it would involve increased infection risk," Gilbert says. Animal studies with the inhibitors hint at some off-target lung and kidney effects. Greenamyre, who is familiar with these findings, describes them as "mild" and says the changes reverse with drug withdrawal. "So far, LRRK2 inhibition appears to be acceptably safe," he says.

Denali Therapeutics announced on August 1 positive results in an early-stage clinical trial of an LRRK2 inhibitor. This initial safety trial in healthy volunteers seems to have rung no alarm bells. Greenamyre says the next step will likely be trials with patients carrying the PD-related *LRRK2* mutation. "What will be tried next is a guess," he says, "but we believe there is a rationale for testing in the earliest stages of idiopathic or sporadic [without the mutations] PD, with a goal of slowing disease progression."

Like other neurodegenerative conditions, the PD disease process begins before symptoms appear. Esther Sammler, a neurologist and group leader in the MRC Protein Phosphorylation and Ubiquitylation Unit at the University of Dundee, says a prodromal stage, before full-blown symptoms manifest, can begin as many as 10 years before motor symptoms are detected. Di Maio notes this presymptomatic stage might be an opportunity to test people for higher LRRK2 activity levels as a

marker of PD risk, something he and his colleagues see as a next step. Another possibility, he says, is administering any successfully developed inhibitors to people at high risk for PD.

Sammler, who was not involved with the *Science Translational Medicine* study, is cautiously optimistic about the potential these LRRK2 findings represent. Use of the inhibitors—whether to prevent disease or slow its progression—would “only be possible if it was clear that any benefit outweighed any potential side effects,” she says, “and there is still a long way to go.”

### **1. Match words with their definitions.**

- |                |   |
|----------------|---|
| 1. benefit     | a. damage, harm, change for the worse                                       |
| 2. inhibitor   | b. protein acting as a biochemical catalyst                                 |
| 3. inheritance | c. the effect that an action will have on something in future               |
| 4. rationale   | d. a change in the chromosomes or genes in a cell                           |
| 5. enzyme      | e. an agent that retards, stops or interferes with a chemical action        |
| 6. impairment  | f. helpful or good effect   |
| 7. implication | g. reception of genetic qualities by transmission from parents to offspring |
| 8.culprit      | h. removal from a place   |
| 9.mutation     | i. fundamental reason for a course of action                                |
| 10.withdrawal  | j. the cause of a problem or defect   |
| 11. target     | k. warning, caution   |
| 12. caveat     | l. aim; somebody that in the focus of attention                             |
| 13. deposit    | m. the reaction of living tissue or a part of the body to                   |

injury or infection

14. inflammation

n. something laid down

## **2. Answer the questions.**

1. What possibilities does halt of enzyme activity give to patients?
2. What is the cause of PD arise in people whose ancestors also suffered from this disease ?
3. What drugs have appeared in the pharmaceutical market and why are they effective ?
4. How might a new drug affect the development of PD ?
5. What did previous experiments bring out ?
6. What is PD accounted for?
7. How did Maio's team try to find out what influences enzyme activity?
8. What is the negative effect of alpha – synuclein ?
9. What is positive result of alpha – synuclein?
10. What might follow if LRRK2 breaks down?
11. How long can it take symptoms of PD to manifest?
12. What opportunities does slow prodromal stage give to people at high risk for PD?.

## **3. Choose the right variant.**

1. It is important to stop excessive functioning of the enzyme because:
  - a) it can stop gene mutation
  - b) it helps to detect symptoms at an early stage
  - c) it can lead to developing of the broad spectrum agent
2. Parkinson Disease process begins because:
  - a) patients with PD have led non – active lifestyle
  - b) ) neurons regulating movements stop functioning
  - c) the activity of LRRK2 has reduced

3. LRRK2 inhibition is not dangerous because:
- a) it has been proved to be safe for decades of trials
  - b) it doesn't cause any complications
  - c) some negative changes are reversible
4. Clinical trials are going to be performed:
- a) in people who have genes that can cause PD
  - b) in healthy volunteers
  - c) in people who are at high risk of gene mutation
5. The onset of PD :
- a) is detected immediately
  - b) has premonitory signs
  - c) is apparent after a decade since the disease arise

**4. Word formation.** Use suffixes -tion, -less, -ment, -ness to form words. Complete sentences with these words.

To satisfy, effective, to treat, to hope, dry, to care, to help, to encourage, to agree, to expect, to intend, to object,

1. He gave us a great deal of encouragement before our Latin exam.
2. Dryness in the mouth can be caused by some medications.
3. I'm really hopeless with computers. I always do something wrong.
4. My intention is to be a doctoral student with an eminent cardiologist.
5. Smoking can kill you. You shouldn't be so careless to your own health.
6. Liebig and Pasteur were in agreement on the point that fermentation is ultimately connected with the presence of yeast in the fermenting liquid.
7. Expectations regarding the effectiveness of the new drug are extremely high.
8. My main objection is that people will have to pay for their treatment.

9. By the door a sick man was lying upon a couch, helpless and pale.
10. Studies have found that patient satisfaction with ambulatory surgery centres exceeds that of hospital - based centres.

### **5. Grammar exercises.**

1. Task 1. Find in the second and the last paragraphs of the text sentences with Passive Voice. Translate them into Russian.

2. Task 2. Transform sentences from Active Voice into Passive Voice. Translate sentences into Russian.

e.g. The doctor examined the patient. – The patient was examined by the doctor.

1. Osteoarthritis affects nearly all older adults causing swelling, pain and stiffness in joints.
2. Many non-infectious diseases can limit the activities of the elderly.
3. The electrocardiogram reveals myocardial damage.
4. Vaccination campaigns will use vaccines designed to protect against all types of polio virus.
5. Physician can detect heart problems by taking patient's blood pressure.
6. A new study estimated the possibility of ending malaria in African countries.
7. Your doctor may recommend urinalysis if she/he suspects kidney disease.
8. The treatment reduced the symptoms which were due to inflammation.
9. Researchers haven't completely investigated the structure and function of the placenta.
10. The immune system doesn't reject the fetus which is in many ways analogous to an organ transplant.

### **Keys to the exercises.**

1. Keys to "Match the words...". 1 - f, 2 - e, 3 - g, 4 - i, 5 - b, 6 - a, 7 - c, 8 - j, 9 - d, 10 - h, 11 - l, 12 - k, 13 - n, 14 - m



## **2. Keys to “Answer the questions”.**

1. It can become a general treatment.
2. Gene mutation.
3. Drugs that inhibit the activity of kinases; phosphates attached by LRRK2 to other proteins activate or suspend LRRK2 targets.
4. It might halt its progression.
5. A gene without any mutation might be involved in non – inherited PD.
6. Neurons controlling movement break down and die.
7. They walked step by step before and after LRRK2 in search of factors that affect its activity.
8. It is the main component of the cell – smothering deposits. It also causes impairments in mitochondria.
9. It maintains immune system.
10. Side effects can emerge, there might be infection risk.
11. As many as 10 years.
12. These people can be tested for higher LRRK activity level and can be administered with inhibitors.

**3. Keys to “Choose the right variant”.** 1 - c, 2 - b, 3 - c, 4 - a, 5 - c

## **4. Keys to Word formation.**

1. encouragement
2. dryness
3. hopeless
4. intention
5. careless
6. agreement
7. expectations, effectiveness

8. objection, treatment
9. helpless
10. satisfaction

#### **4. Keys. Grammar exercises.**

##### Task 1.

1. A handful of gene mutations is linked .....
2. Sammler, who was not involved with the Science .....

##### Task 2.

1. Nearly all older adults are affected by osteoarthritis which causes swelling, pain and stiffness in joints.
2. The activities of the elderly can be limited by many non – infectious diseases.
3. Myocardial damage is revealed by electrocardiogram.
4. Vaccines designed to protect against all types of polio virus will be used by vaccination campaigns.
5. Heart problems can be detected by taking patient's blood pressure.
6. The possibility of ending malaria in African countries was estimated.
7. Urinalysis may be recommended by the doctor if she/he suspects kidney disease.
8. The symptoms which were due to inflammation were reduced by treatment.
9. The structure and function of the placenta haven't been completely investigated by researchers.
10. The fetus which is in many ways analogous to an organ transplant is not rejected by the immune system.



## Virtual Medicine for Real Patients

Medical science is using simulations to query, challenge, hypothesize and test with greater speed and accuracy.

In an effort to develop a vaccine for HIV (*above*), scientists at Harvard and MIT have started to perform many of their experiments in biologically accurate virtual environments.

Nobel laureate Martin Karplus is hoping to develop a vaccine against HIV. However, although the emeritus professor of chemistry has a lab at Harvard University, and is collaborating with biophysicist, Arup Chakraborty, at nearby MIT, they perform many of the experiments in the virtual world.

Their research centers on the small number of people infected with HIV whose immune systems have managed to suppress the virus. Through molecular simulations in *silico*, they have determined what makes these people so ‘lucky’. “When we looked at the antibodies these patients have developed, we found what are called broad-based antibodies,” says Karplus. Also known as broadly neutralizing HIV-1 antibodies, or bNAbs, these antibodies target conserved epitopes of the virus, which persist even as the rest of the virus is mutating. “We are developing antigens through molecular simulation that will provoke the immune system to make these broad-based antibodies to fight the virus,” he says. A similar approach might be used for flu.

It’s a new era of modeling and simulation, which is accelerating discovery for drugs, vaccines, medical devices, materials, and many other products. For years, simulations have been used for physical systems, to cheaply and rapidly test hundreds of prototype designs. And now they are spreading. When it comes to biomedicine, simulations are often the only viable option to test thousands of drug formulations — both from ethical and practical standpoints. Simulations are part of a bigger move to use technology to improve safety in biomedical testing.

Artificial human organs, also known as organs-on-chip, are another such technology. “Advances in organ-on-chip technology are enabling the study of human physiology in an organ specific context,” says Reza Sadeghi, chief strategic officer of BIOVIA, a brand of Dassault Systèmes, which develops 3D design and digital mockup software. “This will eventually reduce or do away with the need for animal testing in the drug development process.”

Increasingly, data from simulations augment clinical trial results. “In *silico* clinical trials are particularly useful in cases where safety is a priority, or where we’re

testing a small group of patients with a specific condition that might be difficult to access,” says Tina Morrison, deputy director of the Division of Applied Mechanics at the US Food and Drug Administration (FDA). “Virtual patients are a big part of this; we’re not necessarily talking about a completely digitized person, but a digital representation of a very specific part of a patient’s anatomy and/or physiology.”

### **Reducing Antibiotic Resistance**

Another joy of virtual labs is that you can run several at once. In collaboration with Harvard biophysicist, Victor Ovchinnikov, Karplus is also running simulations to combat antibiotic resistance. “Pathogenic bacteria, such as those causing tuberculosis or meningitis, are developing resistance to antibiotics at an alarming rate,” he says.

Bacteria have pumps that permit them to expel antibiotics, and Karplus and Ovchinnikov have been able to find peptides that inactivate them. “Using computer simulations, we designed peptides that we expected to inhibit one of these pumps, the EmrE transporter,” Karplus explains.

All this has been done using only a small computer, which sends information to larger systems in remote locations, such as the National Energy Research Scientific Computing Center in Berkeley, California, where the complex computations are performed. The newly discovered peptides have been synthesized by a team led by Charles Deber, a biochemist at the University of Toronto, and tested in the real world for efficacy and to determine dosage.

With these molecular dynamics simulations, Karplus and his team are gaining increasing insight into the functioning of various components of living systems. “Researchers are going from simulating individual molecules to larger complexes, to simulating cells, and even to living organisms,” Karplus says. “Simulations provide insight you cannot get from experiment alone.”

### **Designing New Drugs**

The pharmaceutical company, Pfizer, is also using computational modeling and simulation to streamline the process of designing new medicines. “A simulation may accurately predict atomic-level details of a drug molecule interacting with its molecular target, or mathematically compute where a drug will likely go in the body, and how it might affect the disease being treated,” says Enoch Huang, executive director, computational sciences at Pfizer in Cambridge, Massachusetts. “The computational techniques employed include machine learning, which leverages the wealth of historical data that Pfizer has amassed, and other modeling

techniques that rely on institutional knowledge of what the body does to a drug, what the drug does to the body, and how that plays out in the broader context of disease.”

In drug discovery, there can be millions of molecules that might work; virtual testing helps to winnow that number to a manageable amount. “We only need to synthesize and test a tiny fraction of these millions of virtual molecules,” says Huang, “because we are able to triage down to those with the highest chance of becoming medicines.”

## **Evaluating Medical Devices**

Along with facilitating development of new drugs and vaccines, virtual labs are also assisting in the safety evaluation of medical devices. The FDA, in collaboration with the [Medical Device Innovation Consortium](#), recently used the virtual patient concept to test a new pacemaker lead, which takes electricity from the pacemaker to stimulate the heart. The team used an engineering model of the lead and applied probabilistic methods to account for patient activity, patient variability in size, variations in manufacturing and more. By simulating thousands of virtual trials, the team could predict the survival rate of the lead — how long it will last before developing a fracture that would block the electrical charge. The data from the virtual patient cohorts were then used as prior knowledge to design an adaptive clinical trial for the new lead, where the endpoint of lead fracture was evaluated in both real and virtual patients.

“A typical clinical study of this nature would likely need 450 patients to test the lead over the course of three years,” says Morrison. “But with the virtual patient cohort, we only ended up requiring 406 patients, because we were able to enroll 44 virtual patients.”

Given that the average cost per patient is \$30,000-50,000, removing the need to enroll and follow 44 individuals brought significant time and cost savings.

“Computer-based modeling is changing the way we evaluate medical devices, enabling us to conduct smaller clinical trials or augment trials with digital evidence,” she says. “Simulation allows us to experiment beyond what we can do in a physical environment, without putting patients at risk.”

### **1. Complete with prepositions.**

a) Nobody can account \_\_\_\_\_ the poor treatment results.

- b) No one knew much about the etiology of this disease \_\_\_\_\_ any rate he didn't.
- c) The need \_\_\_\_\_ urgent medical assistance is acute.
- d) He didn't seek any medical aid but relied \_\_\_\_\_ prayer and nursing.
- e) Ask the doctor to run a test \_\_\_\_\_ your blood sugar levels.
- f) He suffered \_\_\_\_\_ a serious injury that obliged him to give \_\_\_\_\_ work.
- g) Although in poor health, she continued to carry \_\_\_\_\_ her duties.
- h) The staining reaction of the various parts of the nucleus depend \_\_\_\_\_ their chemical constitution.
- i) The focus is on creating a culture of health, in which children want to grow up healthily
- j) You are very nervous. You need to calm down.

## 2. Match adjectives with their synonyms and antonyms.

Fast, narrow, imprecise, dangerous, meaningless, wide, enormous, minute. tolerant, delayed, comforting, exact, unfeasible, pervious, identical, close, important, different, applicable, far

antonym	adjective	synonym
	accurate	
	broad	
	remote	
	similar	
	tiny	
	rapid	
	viable	
	significant	
	resistant	

	alarming	
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### 3. Grammar exercises.

1. Find in the text a sentence with Present Continuous and translate it.
2. Use the correct form of Continuous Tenses.
  - a). You can't find this drug in pharmacies as yet– it (test) on a group of volunteers now.
  - b). Sorry, I'll call back later. The doctor ( take) my blood pressure.
  - c). When the nurse (make) an injection to the patient he fainted.
  - d). At 12 o' clock tomorrow the eminent surgeon (perform) a unique operation. .
  - e). The researcher noticed that the tissue cells of the remaining part of the organ (enlarge) and (undergo) active proliferation.
  - f). Physician – scientists (bridge) the gap between the clinic and lab nowadays.
  - g). They (enter) a hospital for a checkup next Monday.

### 4. Mark sentences True or False. If a sentence is not true, give the correct variant.

1. The researchers are observing few people whose immune systems have restrained the activity of the HIP virus.
2. The infected patients are feeling well because their antibodies affect the outer protein coating of the HIV virus.
3. In terms of ethics and practice, simulations is often the most effective way to find out if a drug formulation is worth of further developing.
4. Computerised clinical tests provide general – purpose study of a digitized human organism.
5. Peptides placed in bacteria pumps counteract the action of antibiotic.
6. Simulations may provide a detailed digitized observation of the way a drug molecule goes on in the body.



7. Virtual investigations make clinical trials less expensive and less harmful to patients.

**5. Choose the right variant of the answer.**

1. Antigens are being developed so that:

- a) antibodies can preserve conserved epitopes of the virus
- b) antibodies can prevent the virus from mutating
- c) antibodies can stop the activity of the virus

2. Computerized modeling provides:

- a) replacing transplanted human organs by artificial organs
- b) avoiding risks of damage or harm in biochemical experiments
- c) improving of accuracy data in animal testing

3. Peptids are functioning in order to:

- a) prevent pumps of the virus from working
- b) to raise the efficacy of antibiotics
- c) promote resistance to antibiotics

4. To come up with a new medicine, researchers need to:

- a) synthesize new molecules
- b) test each molecule
- c) select portions of molecules that are fit for becoming a drug

5. Virtual labs :

- a) assist in repairing faulty devices
- b) ascertain survival rate of the diseased people
- c) determine the life duration of equipment

**Keys to “Complete with prepositions”.** a) – for, b) – at, c) – for, d) – on, e) - on, f) from, up, g) – out, h) – on, i) – up, j) – down

**Keys to “Match adjectives ...”.**

accurate – imprecise, exact

broad – narrow, wide

remote – close, far

similar – different, identical

tiny – enormous, miniscule

rapid – slow, fast

viable – unfeasible, applicable

significant – meaningless, essential

resistant – pervious, tolerant

alarming – comforting, dangerous

**Keys to “Grammar exercises”.**

a) it is being tested

b) is taking

c) was making

d) will be performing

e) were enlarging

f) are bridging

g) are entering

**Keys to “Mark sentences True or False”.**

1 – True

2 - False – Their antibodies target conserved epitopes of the virus.

3 – True

4 - False - A digital representation of a specific part of a human’s anatomy is studied.

5. False - Peptids that may inhibit pumps of bacteria inactivate them.

6. True

7. True

**Keys to “Choose the right variant”.** 1 - c, 2 - b, 3 - a, 4 - c, 5 - c)

## **New Approach to Decay Risk Assessment**

Tooth decay is one of the most pervasive diseases of our time but modern dentistry has made major strides in the battle against cavities. Based on years of scientific and clinical research, dentists are now moving towards an approach to dental caries (tooth decay) management that is tailored to your personal risk rather than a “one size fits all.”

The previous method of “drilling and filling” to treat decay does not actually change the conditions that lead to the disease and the risk for further infection still remains. By profiling the degree of risk and implementing individualized preventive strategies, today’s dental professionals are using a more proactive approach — that works.

## **Dental Decay — A Dynamic Infectious Disease Process**

The mouth is an ecosystem — living organisms continually interact with every other element in their environment. The teeth are composed of an outer covering of enamel, a highly mineralized crystalline structure composed mainly of calcium and phosphate. They are also bathed in a remarkable fluid — saliva, which plays a crucial role in maintaining a neutral environment or balance between the acids and bases in your mouth.

Acidity is measured by the pH scale, the pH of the mouth is generally 7 — neutral.

Specific acid producing (acidogenic) bacteria attach themselves to dental plaque, the whitish sticky biofilm that collects and forms on the teeth. When you eat sugars or carbohydrates, these particular bacteria break down the sugars and produce acid as a by-product, which also makes the mouth more acid. At about pH 5.5, the minerals just below the enamel surface of the teeth begin to dissolve or “de-mineralize.” During this process, more calcium and phosphate leave the surface of the teeth than enter it — the first step in the decay process. And because the layer beneath the enamel, and the roots of teeth are made of dentin, which is softer than enamel, it is more susceptible to decay.

## **Why Me? Individualizing Risk Assessment**

Given similar habits, you might wonder why some people get cavities and others don’t? Dr. John Featherstone, an imminent researcher, introduced the concept of the Caries Balance in 2002, in which he demonstrated that dental caries (tooth decay) and dental health are the result of a delicate balance between pathologic (disease causing) and protective (health promoting) factors. Each person has

his/her own unique balance that is constantly changing. The challenge is to identify what is out of balance and how to tip it towards health and protection.

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## **New Tools Of The Trade**

This process is precisely what we are doing in dentistry today with the Caries Management by Risk Assessment (CAMBRA) approach. Modern dentistry can now evaluate risk factors for dental caries and use them to make preventive recommendations. Not everyone has the same risk level for developing dental caries, which is further complicated by the fact that risk is dynamic and changes daily, as well as over longer periods of time.

Prevention includes determining both pathogenic and protective factors — both sides of the balance, and the factors that tip the balance. Some of these include Disease Indicators and Risk Factors that lead to imbalance and Protective Factors that shift the balance toward health. These entities are measurable and quantifiable but more importantly, they can be modified leading to predictable disease prevention.

Accurate determination of risk is greatly aided when your dental professional uses a caries risk assessment form to ask you specific, scientifically validated questions to help pinpoint imbalances. Risk assessment forms allow dentists a simple way to determine your potential for future tooth decay. Evaluating disease indicators of past behavior is often the most accurate and best indicator of future disease.

## **Disease Indicators**

Disease Indicators work by showing you what could happen based on what has happened. Identifying them includes the use of modern dentistry's most sophisticated tools for early diagnosis of decay. They include:

Visible cavities (decay) that is visible in teeth ranging from very early (microscopic) detection using, for example, laser technology, to cavities that are visible to the naked eye.

X-ray pictures show early decay that is visible by using today's highly sensitive yet low dosage x-rays.

White spot lesions are the first sign of decay in the contacting areas of adjacent teeth that are often reversible with fluorides.

## **Risk Factors**

Risk Factors are those associated with an increased chance of disease or infection. They may be linked to a disease, but do not necessarily cause it.

They include:

Visible plaque that you can see, means there's a lot of it. And if your mouth is acidic, your plaque (biofilm) is especially prone to contain decay producing (acidogenic) bacteria.

Inadequate saliva flow leads to dry mouth or if the ability of your saliva to neutralize acid is diminished, protection against decay is seriously compromised.

Many medications can cause mouth dryness and in addition, diseases that result in lack of saliva result in diminished ability to neutralize acid. Both significantly increase the risk of decay.

Frequent snacking, eating sugars, refined carbohydrates, and acidic foods actually promote acid producing "BAD" bacteria.

Deep "pits and fissures," the shapes of teeth vary from person to person; your genetic make-up controls how deep the tiny grooves (fissures) and pits are on your tooth surfaces. The deeper they are, the more likely they are to harbor bacteria.

Acidic beverages or foods not only increase the growth of acid loving (aciduric) bacteria, but they can also cause erosion of enamel.

Other conditions, like bulimia and anorexia (psychological states in which individuals induce vomiting), and Gastro-Esophageal Reflux Disease (GERD) can create highly acidic conditions in the mouth causing severe erosive damage to teeth.

### **Diagnosis and Prevention — Testing**

Today it is possible to test for the acid-producing bacteria by taking a sample of your plaque (biofilm) and testing it for acid producing bacteria. You can also try to eradicate these bacteria by changing the conditions (pH balance) of your mouth. Testing meters can now give estimates of acid producing bacteria in 15 seconds. A reading from 0 - 1500 correlates with low risk and a reading of 1501-9999 correlates with higher risk.

This provides a diagnosis based on your personal risk, which is important for three reasons. Firstly, it is based on identifiable evidence, secondly, it can be modified based on recommendations and actions, and thirdly, repeating the procedure can objectively measure progress at reducing your personal risk of tooth decay.

In addition to the traditional things you've always been recommended to do, treatment and preventive strategies are now based on your personal risk. If your risk for tooth decay is high, it can be reduced or eradicated. Some of the newer and more specific methods and agents include:

Rinses containing a safe dilution of sodium hypochlorite solution and rinses containing chlorhexidine, can kill bacteria and lower acidity (raise pH) thereby disrupting their influence and ability to cause disease.

Fluoride containing products strengthen enamel surfaces making them more resistant to decay while encouraging re-mineralization.

Xylitol,(table sugar), is known to disrupt the ability of acid-producing bacteria to thrive and attach to teeth. Xylitol is available in a rinse, spray, chewing gum, as well as breath-mints.

Dental products that contain or mimic calcium and phosphate minerals can help re-mineralize the teeth, especially if saliva is lacking (as in dry mouth.)

Based on known science, a Caries Management By Risk Assessment (CAMBRA) dental professional can quickly and easily assess your risk and recommend appropriate measures that you should try as part of your daily oral/dental health regimen.

### **Mark sentences True or False.**

1. Specialists in modern dentistry are acting in advance to reveal tooth decay.
2. Saliva controls bacteria count in the mouth.
3. Dentists are adjusting tooth decay treatment so it is right for a particular person.
4. Rising of the pH of the mouth leads to the decay process.
5. Dental health and dental decay depend on appropriate equilibration of pathologic and protective factors in the mouth.
6. Risk degree profiling makes it possible to avoid tooth decay.
7. The risk for developing dental caries remains at the same level.
8. Accurate evaluation of past behaviour determines your potential for future tooth decay.

9. White spot lesions indicate the last stage of tooth decay progression.
10. Mouth dryness shifts the balance in the mouth towards dental caries.
11. The inherited shape of teeth determine how prone they are to dental caries.
12. Excessive amount of acid in the mouth prevents teeth from destruction.
13. A portion of your plaque is the material to be evaluated for tooth decay risk.
14. Data received from testing meter provide individualized risk assessment.
15. Xylitol containing products promote de-mineralization of enamel surfaces.

**Choose the correct variant.**

**1.** Previous medications are less effective because they:

- a) b) don't remove plaque completely
- b) don't change Ph balance in the mouth
- c) lead to severe complications

**2.** A new approach provides:

- a) painless treatment
- b) increase of saliva flow in the mouth
- c) use of individualized preventive strategies

**3.** Demineralization results in tooth decay because:

- a) the enamel is harder than the layer beneath and the roots of teeth
- b) it eradicates useful bacteria
- c) there are no tools to detect it at the early stage

**4.** The risk of dental caries can increase because:

- a) consumption of high – fiber foods is not in sufficient scale
- b) the environment in the mouth changes daily
- c) GMO – containing products encourage demineralization of the teeth



**5.** Deep pits and fissures are risk factors because they:

- a) cause the erosion of the enamel
- b) accumulate plaque and bacteria
- c) damage the adherent tissue that results in inflammation

**6.** Rinsing

- a) prevents from fissure formation
- b) stops toothache
- c) make enamel surfaces more resistant to decay

**Complete the sentences with the correct tense form of Passive Voice.**

1. During this operation care must (take) lest vast bleeding should occur.
2. The patient complained of recurrent abdominal pain and a laparoscopy (perform).
3. A further \$ 8.5 (spent) on new mortuary and laboratory services by the end of the year.
4. You have to realize – all ills of the worlds simply can ( not cure).
5. Despite the years of research, no appropriate medication (find).
6. He said that his discovery (neglect) before he made the report at the conference.
7. The branch of dentistry that specialises in aligning teeth (know) as orthodontics.
8. The government official declared that the quality of prehospital and hospital care ( improve) on the following year.
9. It's restricted information, it (discuss) now in the boss's office.
10. Keyhole surgery ( associate) with a risk of damaging to neighbouring organs.

**Match words with their definitions.**

1. challenge
- a) a power to have an effect on people or things

- |                      |   |
|----------------------|---|
| 2. entity            | b) drinkable liquid   |
| 3. influence         | c) the superficial destruction of bodily tissue                           |
| 4. evidence          | d) the state of being wanted or deficient                                 |
| 5. beverage<br>great | e) something new and difficult which requires<br>effort and determination |
| 6. lack              | f) an outward sign, indication  |
| 7. complication      | g) something that has a real distinct existence                           |
| 8. erosion           | h) a negative reaction aggravating the illness                            |

**Which do the following words refer to – Present Participle, Gerund or Verbal noun?**

1. Dentists now are moving towards an approach to dental caries management.
2. Profiling the degree of risk means the recording and analysis of oral conditions so as to assess and prevent future decay.
3. It resulted in the balance between disease causing and health promoting factors.
4. The teeth are composed of an outer covering of enamel.
5. “Drilling and filling” don’t actually change the conditions that lead to disease.
6. These entities can be modified leading to predictable disease prevention.
7. White spot lesions are the first sign of decay in the contacting areas of adjacent teeth.
8. Repeating the procedures, the dentist can objectively observe the progress in tooth decay treatment.
9. Prevention includes determining both pathogenic and protective factors.
10. Rinses, containing chlorhexidine, can kill bacteria and lower acidity.

**Keys. True or False**

1 - True, 2 - False, 3 - True, 4 - False, 5 - True, 6 - True, 7 - False,  
8 - True, 9 - False, 10 - True, 11 - True, 12 - False, 13 - True, 14 -  
True,  
15 - False

**Keys. Right variant.** 1 - b, 2 - c, 3 - a, 4 - b, 5 - b, 6 - c

**Keys. Passive voice.** 1 - must be taken, 2 - was performed

3 - will have been spent, 4 - can't be cured

5. has been found, 6 - had been neglected

7. is known, 8 - would be improved on

9. is being discussed, 10 - is associated

**Keys. Match words.** 1 - e, 2 - g, 3 - a, 4 - f, 5 - b, 6 - d, 7 - h, 8  
- c

**Keys. Present Participle, Gerund or Verbal noun.**

1. "moving" - Present Participle
2. "profiling" - Gerund, "recording" - Verbal Noun
3. "causing" and "promoting" - Present Participles (Participial Adjectives)
4. "covering" - Verbal noun
5. "drilling" and "filling" - Gerund
6. "leading" - Present Participle
7. "contacting" - Present Participle (Participial Adjective)
8. "repeating" - Present Participle
9. "determining" - Gerund
10. "containing" - Present Participle

